

THE EFFECT OF INDIVIDUAL AND FAMILY SELF MANAGEMENT ON HEALTH LOCUS OF CONTROL WITH DIABETIC FOOT ULCERS

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ABSTRACT

Introduction: Diabetic Foot Ulcer (DFU) is one of the most common complications of Diabetic Mellitus (DM) which spending a lot of costs and decreasing life quality of DM patients. DFU treatment serves to prevent and minimize the acute and chronic complications that affect the behavior of self and Quality of Life (QoL). Therefore, the purpose of this study was to reveal whether the self-management of individuals and families includes the process of self-management (knowledge and belief, the ability of self-regulation, and social facilities), the proximal (self-behavior) include a summary of the activity of self-care diabetes in participants DFU effect on health locus of control (HLOC) with DFU complication in Bantul, Yogyakarta. **Method:** Non-random sampling technique was used in this research, namely by purposive sampling method. The criteria of research samples were 30 individuals aged ≤ 69 years. Data of this study was collected by questionnaire and analyzed by Statistical Multiple Regression analysis ($p < 0.05$). **Results:** The result showed that the health locus of control of DFU patients not significantly influenced by the knowledge and belief ($p = 0.069$). Meanwhile, DFU patient's health locus of control significantly influenced by self-regulation ability ($p = 0.022$), self-care activities ($p = 0.037$), and social facilities ($p = 0.028$). Furthermore, multiple regression analysis showed that determination coefficient was 0.738. **Discussion:** It can be concluded that most DFU patients which had health locus of control influenced by the ability of self-regulation, social facilitation and self-care activities.

Key words: *diabetic foot ulcer, self management, health locus of control.*

INTRODUCTION

Diabetes mellitus (DM) is worldwide most common metabolic syndrome. DM characterized by increased blood glucose levels. More than 23 million people have diabetes in the United States (CDC, 2015). In Indonesia, there were 10 million cases in 2015. Prevalence of diabetes in the world as many as 415 million people in 2015 and is expected to increase five-fold by 2040 (IDF, 2016). Diabetic Foot Ulcer (DFU) is one of the most serious DM complications; which spending a lot of costs and decreasing life quality of DM patients (Monteiro-Soares, 2014). Diabetes mellitus patients which are experiencing DFU is estimated about 25%. It is estimated that over one million people with diabetes have amputations each year. In 2005 reported major amputations due to diabetes in the world's population every 30 seconds (Singh et al., 2005).

DFU treatment serves to prevent and minimize the acute and chronic complications that affect the behavior of self and QoL. Based on Dressing research (2015) DFU patients experience problems such as boredom in the implementation of such treatment with a family, feel a burden on the family, low self-esteem, and lack of knowledge in the treatment at home (Rias, 2015). Stress and fear of death making the DFU persons seeking treatment for cured. Firman (2013) in his study mentions that the DFU patients tend to use coping strategies such as undergoing medical treatment, pray, resigned to live, reduced activity, and changing eating patterns become more healthy as attempt to deal with the disturbance suffered. It affects the quality of life but DFU patients still perform medical treatment to keep him alive despite experiencing stress, so it will affect health behavior. Based Ginitasasi (2010) health behaviors are divided into three groups: the

behavior of health care, health-seeking behavior and the use of the facility or the health care system, and environmental health behavior. Personal control is one of the factors that influence the health behavior of individuals. One approach in measuring personal control of individuals with regard to health is the approach of the health locus of control (Subihariyono & Goddess, 2013).

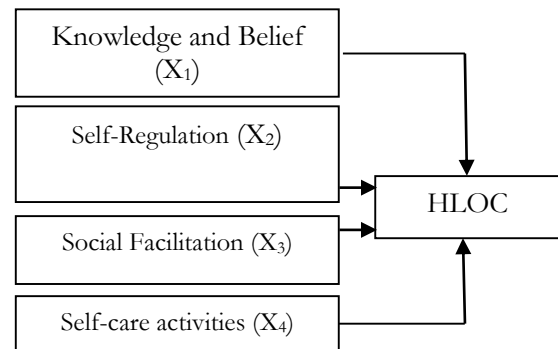
Health locus of control can be defined as the degree of belief of individual's health in the controlled internal and external factors. Internal factors refer to the belief that a direct outcome is the result of the behavior of the individuals themselves. In the other hand, external factor refers to the belief to another power influence (powerful others) and luck (chance). Several studies have correlating health locus of control with healthy behaviors. Lawson, (2011) also mentions that health locus of control influence the management of individuals to make decisions regarding their health. Based on those literature review, it can be assumed that the self-management of individuals and families in DFU participants in the low category so that it can be seen from the health locus of control.

This study was aimed to reveal whether the self-management of individuals and families includes the process of self-management (knowledge and belief, the ability of self-regulation, and social facilities), the proximal (self-behavior) include a summary of the activity of self-care diabetes in participants DFU effect on health locus of control with DFU.

METHOD

This study was pre-experimental research. Non-random sampling technique was used in this research, namely by purposive sampling method. The criteria of research sample was 30 individuals aged ≤ 69 years which were not hearing-impaired and blind, had a caregiver who lives in one house. Data was collected by questionnaire. The data analysis method used in this study include the phase measurement and interpretation of the self-management value of individuals and families includes the process of self-management (knowledge and belief, the ability of self-regulation, and social facilities), the proximal (self-behavior) as well as the activity of DM self-care summary, the next stage of statistical tests include bivariate correlations test of forth

antecedents of individual and family self-management with DFU patients health locus of control (Figure 1).



Figures 1 Study Variables

Questionnaires filled in the questionnaire data sheet self-management of individuals and families who tested the validity of the results $p < \alpha$ (0.05) and test the results of rehabilitation with Alpha Cronbach $r \geq r$ table. Questionnaires health locus of control by 0728 it shows that this measure is reliable and consistent (table 1). Furthermore, data from the questionnaire were analyzed using descriptive statistical analysis with SPSS to see whether there is a relationship between knowledge and belief, self-regulation, self-facilitation, self-care activities with High Locus of Control.

Tabel 1 Questionnaire Reliability Test

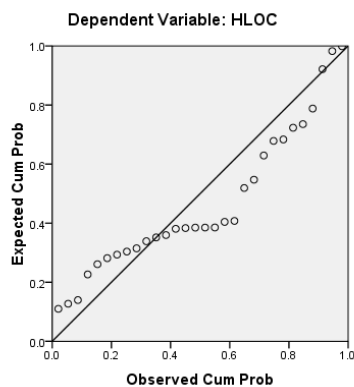
No	Kuesioner	Cronbach Alpha Value
1	Questionnaire A (Knowledge and Belief)	0,900
2	Questionnaire B (Self-regulation)	0,880
3	Questionnaire C (Social Facilities)	0,923
4	Questionnaire D (Self-care activities)	0,917

Gitawati (2013)

RESULTS

DFU is one of the most serious and costly complications of diabetes mellitus. Amputation of the lower extremity or part of it is usually preceded by a foot ulcer. A strategy that includes prevention, patient and staff education, multidisciplinary treatment of foot ulcers, and close monitoring can reduce amputation become main focus of several countries and organizations, such as the World Health Organization and the International Diabetes Federation (Bekker *et al.*, 2012).

This research was conducted to reveal the relationship between knowledge and belief, the ability of self-regulation, social facilities, and patient self-care activities with HLOC. Normality of the data of this study is presented in Figure 2.



Figures 2. P-Plots Regression Residual

Figure 2 is a graph of normal P plot that indicates that the data in this study are normally distributed. Respondents have a self-management behavior in moderate categories which is dominated by the respondents who had high health locus of control. Health locus of control most of respondents in the moderate category and within those categories are dominated by respondents who also have moderate self-management behavior.

The Pearson correlation test then performed to the data to examine the relationship between variables. Correlation analysis results are shown in Table 2. Interesting results obtained from the table 2, it showed a strong correlation between self-care, social facilitation, and self-regulation with HLOC shown of correlation values, respectively for 0.888, 0.898 and 0.892. In the other hand, correlation values of knowledge and belief with the HLOC is 0.160. It is lower than specified p value $p < 0.05$.

Tabel 2. Pearson Corelation between Self regulation, Social Facilitation, Self care, Knowledge and Belief with HLOC of DFU patients in Bantul Yogyakarta

	SELF_				
	HL	REGU	SOCIAL_FA	SELF	KNOWLED
	O	LATIO	CILITATIO	_CAR	GE_BELIE
	C	N	N	E	F
HLOC	1.000	.892	.889	.888	.160
SELF_REGULATION	.892	1.000	.882	.883	.188
SOCIAL_FACILITATION	.889	.882	1.000	.880	.125
SELF_CARE	.888	.883	.880	1.000	.132
KNOWLEDGE_BELIEF	.160	.188	.125	.132	1.000
HLOC	.	.000	.000	.000	.199
SELF_REGULATION	.000	.	.000	.000	.160
SOCIAL_FACILITATION	.000	.000	.	.000	.255
SELF_CARE	.000	.000	.000	.	.244
KNOWLEDGE_BELIEF	.199	.160	.255	.244	.
HLOC	30	30	30	30	30
SELF_REGULATION	30	30	30	30	30
SOCIAL_FACILITATION	30	30	30	30	30
SELF_CARE	30	30	30	30	30
KNOWLEDGE_BELIEF	30	30	30	30	30

In accordance with previous result, the significance value of each dependent variable to high locus of control is shown in Table 3. Based on Table 3, the significant value of the knowledge and belief of the Health locus of control is 0.0686, which means higher than constants $P < 0.05$. Meanwhile, other variables show significance value under constant value of $p < 0.05$. It means the ability of self-regulation, social facilitation, and self-care activities simultaneously and significantly affect the dependent variable of health locus of control of DFU patients in Bantul Yogyakarta. The value of the significance of the ability of self-regulation, social facilitation, and self-care activities on health locus of control of DFU patients in Bantul Yogyakarta respectively were: 0.004, 0.006, and 0.022.

Table 3 Contribution of Self regulation, Social Facilitation, Self care, Knowledge and Belief with HLOC of DFU patients in Bantul Yogyakarta

Model	Unstandar dized Coefficien ts		Standard ized Coeffici ents	t	Si g.
	B	Std. Error	Beta		
1 (Constant)	1.66 7	2.208		.75 5	.4 57
SELF_REGULAT ION	.398	.125	.400	3.1 94	.0 04
SOCIAL_FACILI TATION	.320	.108	.331	2.9 74	.0 06
SELF_CARE	.264	.108	.270	2.4 46	.0 22
KNOWLEDGE_B ELIEF	.014	.035	.008	.40 9	.6 86

a. Dependent Variable: HLOC

Multiple Regression analysis result also showed significance of regression equation. Furthermore Adjusted R^2 was 0.760 or 76%, this means that the variation of health locus of control of DFU patients in Bantul Yogyakarta (Y) which can be explained by the regression equation is 76% influenced by independent variables: knowledge and belief, the ability of self-regulation, facilitating social and activity. The remaining 24% is estimated to be influenced by other variables outside this study.

DISCUSSION

DFU is one of the most serious and costly complications of diabetes mellitus. Several countries and organizations, such as the World Health Organization and the International Diabetes Federation, have set goals to reduce negative impact of DFU that includes prevention, patient and staff education, multidisciplinary treatment of foot ulcers, and close monitoring (Bakker *et al.*, 2012). Several factors has been identified to increase HLOC of patients including knowledge and believe, self-care, social-facilitation and self-regulation (Bryan *et al.*, 2007; Busseri *et al.*, 2003; Carey *et al.*, 2004; Rhodianto, 2011, Ryan, 2009; Skarbek, 2006). This research was specifically aimed to reveal the simultaneous contribution of knowledge and belief, the ability of self-regulation, social facilitation, and self-care activities with HLOC of DFU patients in Bantul Yogyakarta.

The result showed that there is strong correlation between self-care, social facilitation, and self-regulation with HLOC of DFU patients in

Bantul Yogyakarta (Table 3). DM treatments especially with DFU complication will be enhanced by positive behavior of DFU patients, especially on diet control and maintain healthy life style (Dellasega *et al.*, 2012). According to Ryan & Sawin (2009) individual and family self-management is the process of behavior change in patients and families through health education includes the process of self- management (knowledge and belief), the proximal (self-behavior) and distal outcomes (QoL). This result is consistent with study of the Firman (2012) that described open, deep and wide DFU can change the patient's self-image. Respondents had negative view on the wound in their body. Especially if accompanied by amputation in which some part of the body will disappear and make major changes in his life that led to change the way of life of an individual. Furthermore DFU patients also experience changes of the level of independence, so patients need help from others and sometimes had to be helped by others when performing independently activities. This causes the reduction of patient self-esteem.

The management of diabetes mellitus (DM) largely depends on patients' ability to self-care in their daily lives, and therefore, patient education is always considered an essential element of DM management. Studies have consistently shown that improved glycemic control reduces the rate of complications and evidence suggests that patients, who are knowledgeable about DM self-care, have better long term glycemic control (Al-Maskari, 2013, McPerson, 2008). Interesting result from this research showed that knowledge and belief has low correlation with health locus of control of DM patients with DFU in Bantul Yogyakarta compared to self-regulation, self-care activities and social facilitation (Table 2).

It is clear that the quality of life of patients interrupted due to body negative image of disease conditions and self-esteem are reduced due to the reduced level of independence. Based on interviews with DFU patients, showed that not only the declining of life quality due to the psychological effects received by the patient, but also the patient feels spiritual growth in his life caused of the resignation and hope of a cure by praying to make the quality of spirituality life improved (Rias, 2014).

CONCLUSION AND RECOMMENDATION

From this study, it can be concluded that most DM patients with DFU complication in Bantul Yogyakarta had moderate health locus of control that can be influenced by the ability of self-regulation, social facilitation and self-care activities.

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